Journal of Testing and Evaluation
Table of Contents, Volume 8
1980

No. 1, January

A Hydrostatic Stress-Sensitive Relationship for Fatigue Under Biaxial Stress Conditions—D. F. MOWBRAY 3
The Development of a Closed-Loop, Servo-Hydraulic Test System for Direct Stress Monotonic and Cyclic Crack Propagation Studies Under Biaxial Loading—I. M. H. CHARVAT AND G. G. GARRETT 9
Computer-Controlled Stress Intensity Gradient Technique for High Rate Fatigue Crack Growth Testing—J. K. DONALD AND D. W. SCHMIDT 19
A Compact Specimen for Plane Strain Crack Arrest Toughness Testing—P. B. CROSLEY AND E. J. RIPLING 25
Long-Time Creep-Rupture Tests of Aluminum Alloys—W. C. LESLIE, J. W. JONES, AND H. R. VOORHEES 32
An Evaluation of the Effect of Low Temperatures on Mechanical Properties of a Commercial Steel to be Used in the Arctic—M. R. KRISHNADEV, R. GHOSH, L. R. CUTLER, J. R. PRINCE, AND P. GAUVIN 42
Infrared Techniques for the Evaluation of Silicon Carbide Heat-Exchanger Tubing—W. D. DEININGER AND D. S. KUPPERMAN 48

No. 2, March

Constant-Pressure Liquid Filtration: Mathematical Models for Fast Plugging of the Filter Medium—P. R. JOHNSTON AND D. L. BEALS 57
A Single Specimen Determination of J_{Ic} for Different Alloy Steels—HIDEAKI TAKAHASHI, M. A. KHAN, AND MASAHIKO SUZUKI 63
Effects of Stress Ratio on Fatigue Crack Growth Rates in X70 Pipeline Steel in Air and Saltwater—OLDRICH VOSIKOVSKY 68
Galvanic Corrosion of Piping and Fitting Alloys in Sulfide-Modified Seawater—H. P. HACK 74
Statistical Tolerance Limits for Censored Log-Normal Data—R. E. LITTLE 80
Development and Correlation of a Variable-Speed Friction Tester—J. K. WHITFIELD AND W. G. MULLEN 85
Letter to the Editor—M. A. LLOYD 91

No. 3, May

Comparisons of Fracture Toughness Measurements by the Short Rod and ASTM Standard Method of Test for Plane-Strain Fracture Toughness of Metallic Materials (E 399-78)—L. M. BARKER AND F. I. BARATTA 97
Performance of Chevron-Notch Short Bar Specimen in Determining the Fracture Toughness of Silicon Nitride and Aluminium Oxide—D. MUNZ, R. T. BUBSEY, AND J. L. SHANNON, JR. 103
Effect of Clamping Pressure on the Fatigue Strength of Dimpled and Undimpled Loaded Holes—A. K. LOHSE AND JOHN SHEWCHUK 108
Evaluation of the Three-Component Model for Representing Wide-Range Fatigue Crack Growth Rate Data—ASHOK SAXENA AND S. J. HUDAK, JR. 113
Stress Relaxation in Bending of Copper Beryllium Alloy Strip—ALFRED FOX 119
Erosion and Cavity Characteristics in Rotating Components—P. VEERABHADRA RAO, B. C. SYAMALA RAO, AND N. S. LAKSHMANA RAO 127
The Effect of Oxygen, Salt Concentration, and pH on Galvanic Cells Between a Carbon Filled Polyethylene Cathode and Various Metal Anodes—GEORGE SCHICK 143

No. 4, July

Impurity Variations in Electrolytic Cathode Copper—D. S. MEDRICK AND J. E. TEAGUE 157
Sampling of Electrorefined Copper Cathodes—W. M. TUDDENHAM, A. D. DANGERFIELD, AND B. B. MCMILLAN 161
Strength Reduction in Thin Aluminum Alloy Sheets by Laser Irradiation—GRAHAM CLARK AND M. E. DE MORTON 166
Tensile Properties of A357-T6 Aluminum Castings—D. L. MCLELLAN 170

Effects of Temperature on the Behavior of Metals Under Erosion by Particulate Matter—NAHUM GAT AND WIDEN TABAKOFF 177
Application of Accelerated Weathering Test to Glass-Fiber Reinforced Polyester Sheets of Improved Surface Durability—R. S. YAMASAKI AND A. BLAGA 187
Electromotive Force Stability of Nicrosil-Nisil®—T. P. WANG AND C. D. STARR 192
Generalized Application of Neuber's Rule—TIMM SEEGER AND PAUL HEULER 199
An Acceptance Plan for Feather and Down Products—WILLIAM LANDES 205

No. 5, September

Evaluation of the J_{Ic} Testing Procedure by Round Robin Tests on A533B Class 1 Pressure Vessel Steel—G. A. CLARKE 213
Results of an ASTM Cooperative Test Program on the J_{Ic} Determination of HY130 Steel—G. A. CLARKE, J. D. LANDES, AND J. A. BEGLEY 221
Measuring J_{Ic} and the Resistance to Crack Growth After Initiation—P. W. EARLY AND S. J. BURNS 233
Error Analysis of Intrinsic Viscosity Measurements—BHARAT ASHAR AND L. R. TURCOTTE 235
The Shear Strain to Fracture Characteristics of a Titanium Alloy and an Ultrahigh Molecular Weight Polyethylene Under Complex Loading Conditions—R. J. GRIEVE AND R. LAWRENCE 239
Studies of Impurity Distribution in Electrolytically Refined Copper Cathodes—W. E. PUBLICOVER AND P. W. TAUBENBLAT 246
The Interactions of Stabilized Scrubber Sludge and Fly Ash with the Marine Environment—F. J. ROETHEL, I. W. DUEDALL, H. B. O'CONNORS, J. H. PARKER, AND P. M. J. WOODHEAD 250
Potential for Utilization of Solid Wastes from Sulfur Oxide Control Processes—C. H. PETERSON 255
Utilization of Fluidized Bed Combustion Wastes—R. J. COLLINS 259
Sludge to Fertile Soil—Research Results—R. W. BRIGGS AND R. C. FREAS 265

No. 6, November

A Hot Compression Testing Apparatus for the Study of Isothermal Forging—J-P. A. IMMARIGEON, A. Y. KANDEIL, WILLIAM WALLACE, AND M. C. DE MALHERBE 273
Development of a Chronic Toxicity Test Using *Chironomus riparius* and the Sublethal Effect of Trisodium Carboxymethyloxysuccinate—C. M. LEE, J. F. FULLARD, AND E. HUNTINGDON 282
Room Temperature Capacitance and Dissipation Factor Measurement of Chip Capacitors—An Interlaboratory Evaluation—W. C. LO 288
Computer Data Acquisition Monitoring of the Stress Corrosion Cracking of Depleted Uranium Cantilever Beam Specimens—J. A. JOYCE, D. F. HASSON, AND C. R. CROWE 293
Fatigue Life Prediction of Welded Components Based on Fracture Mechanics—M. H. EL HADDAD, T. H. TOPPER, AND I. F. C. SMITH 301
A Proposed Standard Round Compact Specimen for Plane Strain Fracture Toughness Testing—J. H. UNDERWOOD, J. C. NEWMAN, JR., AND R. R. SEELEY 308
A Wide Range Stress Intensity Factor Expression for the C-Shaped Specimen—J. A. KAPP, J. C. NEWMAN, JR., AND J. H. UNDERWOOD 314
Vibrations in Compact Specimens During Crack Arrest Testing—KLAUS RAHKA 318
Vibratory Horn Cavitation Erosion Comparisons—F. G. HAMMITT AND TSUNENORI OKADA 324

Journal of Testing and Evaluation
Author Index to Volume 8
1980

Number	Month of Issue	Pages
1	January	1-56
2	March	57-96
3	May	97-156
4	July	157-212
5	September	158-272
6	November	273-336

A-C

Ashar, B. and Turcotte, L. R.: Error analysis of intrinsic viscosity measurements, Sept., 235

Baratta, F. I: *see* Barker, L. M. and Baratta, F. I.

Barker, L. M. and Baratta, F. I.: Comparisons of fracture toughness measurements by the short rod and ASTM standard method of test for plane-strain fracture toughness of metallic materials (E 399-78), May, 97

Beals, D. L.: *see* Johnston, P. R. and Beals, D. L.

Begley, J. A.: *see* Clarke, G. A., Landes, J. D., and Begley, J. A.

Blaga, A.: *see* Yamasaki, R. S. and Blaga, A.

Briggs, R. W. and Freas, R. C.: Sludge to fertile soil—research results, Sept., 265

Bubsey, R. T.: *see* Munz, D., Bubsey, R. T., and Shannon, J. L., Jr.

Burns, S. J.: *see* Early, P. W. and Burns, S. J.

Charvat, I. M. H. and Garrett, G. G.: Development of a closed-loop, servo-hydraulic test system for direct stress monotonic and cyclic crack propagation studies under biaxial loading, Jan., 9

Clark, G. and de Morton, M. E.: Strength reduction in thin aluminum alloy sheets by laser irradiation, July, 166

Clarke, G. A.:

Evaluation of the J_{Ic} testing procedure by round robin tests on A533B class 1 pressure vessel steel, Sept. 213

and Landes, J. D. and Begley, J. A.: Results of an ASTM cooperative test program on the J_{Ic} determination of HY130 steel, Sept., 221

Collins, R. J.: Utilization of fluidized bed combustion wastes, Sept., 259

Crosley, P. B. and Ripling, E. J.: Compact specimen for plane strain crack arrest toughness testing, Jan., 25

Crowe, C. R.: *see* Joyce, J. A., Hasson, D. F., and Crowe, C. R.

Cutler, L. R.: *see* Krishnadev, M. R., Ghosh, R., Cutler, L. R., Prince, J. R., and Gauvin, P.

D-H

Dangerfield, A. D.: *see* Tuddenham, W. M., Dangerfield, A. D., and McMillan, B. B.

Deininger, W. D. and Kupperman, D. S.: Infrared techniques for the evaluation of silicon carbide heat-exchanger tubing, Jan., 48

de Malherbe, M. C.: *see* Immarigeon, J-P. A., Kandeil, A. Y., Wallace, W., and de Malherbe, M. C.

de Morton, M. E.: *see* Clark, G. and de Morton, M. E.

Donald, J. K. and Schmidt, D. W.: Computer-controlled stress intensity gradient technique for high rate fatigue crack growth testing, Jan., 19

Duedall, I. W.: *see* Roethel, F. J., Duedall, I. W., O'Connors, H. B., Parker, J. H., and Woodhead, P. M. J.

Early, P. W. and Burns, S. J.: Measuring J_{Ic}, and the resistance to crack growth after initiation, Sept., 233

El Haddad, M. H., Topper, T. H., and Smith, I. F. C.: Fatigue life prediction of welded components based on fracture mechanics, Nov., 301

Fox, A.: Stress relaxation in bending of copper beryllium alloy strip, May, 119

Freas, R. C.: *see* Briggs, R. W. and Freas, R. C.

Fullard, J. F.: *see* Lee, C. M., Fullard, J. F., and Huntington, E.

Garrett, G. G.: *see* Charvat, I. M. H. and Garrett, G. G.

Gat, N., and Tabakoff, W.: Effects of temperature on the behavior of metals under erosion by particulate matter, July, 177

Gauvin, P.: *see* Krishnadev, M. R., Ghosh, R., Cutler, L. R., Prince, J. R., and Gauvin, P.

Ghosh, R.: *see* Krishnadev, M. R., Ghosh, R., Cutler, L. R., Prince, J. R., and Gauvin, P.

Grieve, R. J. and Lawrence, J.: Shear strain to fracture characteristics of a titanium alloy and an ultrahigh molecular weight polyethylene under complex loading conditions, Sept., 239

Hack, H. P.: Galvanic corrosion of piping and fitting alloys in sulfide-modified seawater, March, 74

Hammitt, F. G. and Okada, T.: Vibratory horn cavitation erosion comparisons, Nov., 324

Hasson, D. F.: *see* Joyce, J. A., Hasson, D. F., and Crowe, C. R.

Heuler, P. *see* Seeger, T. and Heuler, P.

Hudak, S. J., Jr.: *see* Saxena, A. and Hudak, S. J., Jr.

Huntington, E.: *see* Lee, C. M., Fullard, J. F., and Huntington, E.

I-L

Immarigeon, J-P. A., Kandeil, A. Y., Wallace, W., and de Malherbe, M. C.: Hot compression testing apparatus for the study of isothermal forging, Nov., 273

Johnston, P. R. and Beals, D. L.: Constant-pressure liquid filtration: mathematical models for fast plugging of the filter medium, March, 57

Jones, J. W.: *see* Leslie, W. C., Jones, J. W., and Voorhees, H. R.

Joyce, J. A., Hasson, D. F., and Crowe, C. R.: Computer data acquisition monitoring of the stress corrosion cracking of depleted uranium cantilever beam specimens, Nov., 293

Kandeil, A. Y.: *see* Immarigeon, J-P. A., Kandeil, A. Y., Wallace, W., and de Malherbe, M. C.

Kapp, J. A., Newman, J. C., Jr., and Underwood, J. H.: Wide range stress intensity factor expression for the C-shaped specimen, Nov., 314

Khan, M. A.: *see* Takahashi, H., Khan, M. A., and Suzuki, M.

Krishnadev, M. R., Ghosh, R., Cutler, L. R., Prince, J. R., and Gauvin, P.: Evaluation of the effect of low temperatures on mechanical properties of a commercial steel to be used in the Arctic, Jan., 42

Kupperman, D. S.: *see* Deininger, W. D. and Kupperman, D. S.

Lakshmana Rao, N. S.: *see* Veerabhadra Rao, P., Syamala Rao, B. C., and Lakshmana Rao, N. S.

Landes, J. D.: *see* Clarke, G. A., Landes, J. D., and Begley, J. A.

Landes, W.: Acceptance plan for feather and down products, July, 205

Lawrence, J.: *see* Grieve, R. J. and Lawrence, J.

Lee, C. M., Fullard, J. F., and Huntington, E.: Development of a chronic toxicity test using *Chironomus riparius* and the sublethal effects of trisodium carboxymethyloxysuccinate, Nov., 282

Leslie, W. C., Jones, J. W., and Voorhees, H. R.: Long-time creep-rupture tests of aluminum alloys, Jan., 32
Little, R. E.: Statistical tolerance limits for censored log-normal data, March, 80
Lloyd, M. A.: Letter to the editor, March, 91
Lo, W. C.: Room temperature capacitance and dissipation factor measurement of chip capacitors—an interlaboratory evaluation, Nov., 288
Lohse, A. K. and Shewchuk, J.: Effect of clamping pressure on the fatigue strength of dimpled and undimpled loaded holes, May, 108

M-P

McLellan, D. L.: Tensile properties of A357-T6 aluminum castings, July, 170
McMillan, B. B.: *see* Tuddenham, W. M., Dangerfield, A. D., and McMillan, B. B.
Medrick, D. S. and Teague, J. E.: Impurity variations in electrolytic cathode copper, July, 157
Mowbray, D. F.: Hydrostatic stress-sensitive relationship for fatigue under biaxial stress conditions, Jan., 3
Mullen, W. G.: *see* Whitfield, J. K. and Mullen, W. G.
Munz, D., Bubsey, R. T., and Shannon, J. L., Jr.: Performance of chevron-notch short bar specimen in determining the fracture toughness of silicon nitride and aluminum oxide, May, 103
Newman, J. C., Jr.:
see Kapp, J. A., Newman, J. C., Jr., and Underwood, J. H.
and *see* Underwood, J. H., Newman, J. C., Jr., and Seeley, R. R.
O'Connors, H. B.: *see* Roethel, F. J., Duedall, I., O'Connors, H. B., Parker, J. H., and Woodhead, P. M. J.
Okada, T.: *see* Hammitt, F. G. and Okada, T.
Parker, J. H.: *see* Roethel, F. J., Duedall, I. W., O'Connors, H. B., Parker, J. H., and Woodhead, P. M. J.
Peterson, C. H.: Potential for utilization of solid wastes from sulfur oxide control processes, Sept., 255
Prince, J. R.: *see* Krishnadev, M. R., Ghosh, R., Cutler, L. R., Prince, J. R., and Gauvin, P.
Publicover, W. E. and Taubenblat, P. W.: Studies of impurity distribution in electrolytically refined copper cathodes, Sept., 246

R-S

Rahka, K.: Vibrations in compact specimens during crack arrest testing, Nov., 318
Ripling, E. J.: *see* Crosley, P. B. and Ripling, E. J.
Roethel, F. J., Duedall, I. W., O'Connors, H. B., Parker, J. H., and Woodhead, P. M. J.: Interactions of stabilized scrubber sludge and fly ash with the marine environment, Sept., 250
Saxena, A. and Hudak, S. J., Jr.: Evaluation of the three-component model for representing wide-range fatigue crack growth rate data, May, 113
Schick, G.: Effect of oxygen, salt concentration, and pH on galvanic cells between a carbon filled polyethylene cathode and various metal anodes, May, 143
Schmidt, D. W.: *see* Donald, J. K. and Schmidt, D. W.
Seeger, T. and Heuler, P.: Generalized application of Neuber's rule, July, 199
Seeley, R. R.: *see* Underwood, J. H., Newman, J. C., Jr., and Seeley, R. R.
Shannon, J. L., Jr.: *see* Munz, D., Bubsey, R. T., and Shannon, J. L., Jr.
Shewchuk, J.: *see* Lohse, A. K. and Shewchuk, J.
Smith, I. F. C.: *see* El Haddad, M. H., Topper, T. H., and Smith, I. F. C.
Starr, C. D.: *see* Wang, T. P. and Starr, C. D.
Suzuki, M.: *see* Takahashi, H., Khan, M. A., and Suzuki, M.
Syamala Rao, B. C.: *see* Veerabhadra Rao, P., Syamala Rao, B. C., and Lakshmana Rao, N. S.

T-Y

Tabakoff, W.: *see* Gat, N. and Tabakoff, W.
Takahashi, H., Khan, M. A., and Suzuki, M.: Single specimen determination of J_{Ic} for different alloy steels, March, 63
Taubenblat, P. W.: *see* Publicover, W. E. and Taubenblat, P. W.
Teague, J. E.: *see* Medrick, D. S. and Teague, J. E.
Topper, T. H.: *see* El Haddad, M. H., Topper, T. H., and Smith, I. F. C.
Tuddenham, W. M., Dangerfield, A. D., and McMillan, B. B.: Sampling of electrorefined copper cathodes, July, 161
Turcotte, L. R.: *see* Ashar, B.
Underwood, J. H.:
and Newman, J. C., Jr., and Seeley, R. R.: Proposed standard round compact specimen for plane strain fracture toughness testing, Nov., 308
and *see* Kapp, J. A., Newman, J. C., Jr., and Underwood, J. H.
Veerabhadra Rao, P., Syamala Rao, B. C., and Lakshmana Rao, N. S.: Erosion and cavity characteristics in rotating components, May, 127
Voorhees, H. R.: *see* Leslie, W. C., Jones, J. W., and Voorhees, H. R.
Vosikovsky, O.: Effects of stress ratio on fatigue crack growth rates in X70 pipeline steel in air and saltwater, March, 68
Wallace, W.: *see* Immarigeon, J-P. A., Kandeil, A. Y., Wallace, W., and de Malherbe, M. C.
Wang, T. P. and Starr, C. D.: Electromotive force stability of Nicrosil-Nisil®, July, 192
Whitfield, J. K. and Mullen, W. G.: Development and correlation of a variable-speed friction tester, March, 85
Woodhead, P. M. J.: *see* Roethel, F. J., Duedall, I. W., O'Connors, H. B., Parker, J. H., and Woodhead, P. M. J.
Yamasaki, R. S. and Blaga, A.: Application of accelerated weathering test to glass-fiber reinforced polyester sheets of improved surface durability, July, 187

Journal of Testing and Evaluation
Subject Index to Volume 8
1980

A-B

Accelerated tests
- Application of accelerated weathering test to glass-fiber reinforced polyester sheets of improved surface durability (Yamasaki and Blaga), July, 187

Aluminum alloys
- Long-time creep-rupture tests of aluminum alloys (Leslie, Jones, and Voorhees), Jan., 32
- Tensile properties of A357-T6 aluminum castings (McLellan), July, 170

Anodes
- Studies of impurity distribution in electrolytically refined copper cathodes (Publicover and Taubenblat), Sept., 246

Bend tests
- Stress relaxation in bending of copper beryllium alloy strip (Fox), May, 119

Biaxial stresses
- Development of a closed-loop, servo-hydraulic test system for direct stress monotonic and cyclic crack propagation studies under biaxial loading (Charvat and Garrett), Jan., 9
- Hydrostatic stress-sensitive relationship for fatigue under biaxial stress conditions (Mowbray), Jan., 3

Brittleness
- Performance of chevron-notch short bar specimen in determining the fracture toughness of silicon nitride and aluminum oxide (Munz, Bubsey, and Shannon), May, 103

C

Calibrating
- Comparisons of fracture toughness measurements by the short rod and ASTM standard method of test for plane-strain fracture toughness of metallic materials (E 399-78) (Barker and Baratta), May, 97

Capacitance
- Room temperature capacitance and dissipation factor measurement of chip capacitors—an interlaboratory evaluation (Lo), Nov., 288

Carbon steel
- Effect of oxygen, salt concentration, and pH on galvanic cells between a carbon filled polyethylene cathode and various metal anodes (Schick), May, 143

Castings
- Tensile properties of A357-T6 aluminum castings (McLellan), July, 170

Cathodes
- Studies of impurity distribution in electrolytically refined copper cathodes (Publicover and Taubenblat), Sept., 246

Cathodic polarization
- Effect of oxygen, salt concentration, and pH on galvanic cells between a carbon filled polyethylene cathode and various metal anodes (Schick), May, 143

Cavitation corrosion
- Erosion and cavity characteristics in rotating components (Veerabhadra Rao, Syamala Rao, and Lakshmana Rao), May, 127
- Vibratory horn cavitation erosion comparisons (Hammitt and Okada), Nov., 324

Ceramic capacitors
- Room temperature capacitance and dissipation factor measurement of chip capacitors—an interlaboratory evaluation (Lo), Nov., 288

Chemical properties
- Sludge to fertile soil—research results (Briggs and Freas), Sept., 265

Clothing
- Acceptance plan for feather and down products (Landes), July, 205

Coal
- Interactions of stabilized scrubber sludge and fly ash with the marine environment (Roethel, Duedall, O'Connors, Parker, and Woodhead), Sept., 250

Combustion
- Utilization of fluidized bed combustion wastes (Collins), Sept., 259

Composite materials
- Application of accelerated weathering test to glass-fiber reinforced polyester sheets of improved surface durability (Yamasaki and Blaga), July, 187

Compression tests
- Hot compression testing apparatus for the study of isothermal forging (Immarigeon, Kandeil, Wallace, and de Malherbe), Nov., 273

Confidence limits
- Statistical tolerance limits for censored log-normal data (Little), March, 80

Copper
- Impurity variations in electrolytic cathode copper (Medrick and Teague), July, 157

Copper alloys
- Stress relaxation in bending of copper beryllium alloy strip (Fox), May, 119

Copper-nickel alloys
- Galvanic corrosion of piping and fitting alloys in sulfide-modified seawater (Hack), March, 74

Correlations
- Erosion and cavity characteristics in rotating components (Veerabhadra Rao, Syamala Rao, and Lakshmana Rao), May, 127

Corrosion fatigue
- Effects of stress ratio on fatigue crack growth rates in X70 pipeline steel in air and saltwater (Vosikovsky), March, 68

Crack initiation
- Single specimen determination J_{Ic} for different alloy steels (Takahashi, Khan, and Suzuki), March, 63

Crack propagation
- Compact specimen for plane strain crack arrest toughness testing (Crosley and Ripling), Jan., 25
- Comparisons of fracture toughness measurements by the short rod and ASTM standard method of test for plane-strain fracture toughness of metallic materials (E 399-78) (Barker and Baratta), May, 97
- Computer-controlled stress intensity gradient technique for high rate fatigue crack growth testing (Donald and Schmidt), Jan., 19
- Computer data acquisition monitoring of the stress corrosion cracking of depleted uranium cantilever beam specimens (Joyce, Hasson, and Crowe), Nov., 293
- Development of a closed-loop, servo-hydraulic test system for direct stress monotonic and cyclic crack propagation studies under biaxial loading (Charvat and Garrett), Jan., 9
- Effects of stress ratio on fatigue crack growth rates in X70 pipeline steel in air and saltwater (Vosikovsky), March, 68
- Evaluation of the three-component model for representing wide-range fatigue crack growth rate data (Saxena and Hudak), May, 113
- Fatigue life prediction of welded components based on fracture mechanics (El Haddad, Topper, and Smith), Nov., 301
- Measuring J_{Ic}, and the resistance to crack growth after initiation (Early and Burns), Sept., 233
- Single specimen determination of J_{Ic} for different alloy steels (Takahashi, Khan, and Suzuki), March, 63
- Vibrations in compact specimens during crack arrest testing (Rahka), Nov., 318

Cracking (fracturing)
- Evaluation of the J_{Ic} testing procedure by round robin tests on A533B class 1 pressure vessel steel (Clarke), Sept., 213
- Wide range stress intensity factor ex-

pression for the C-shaped specimen (Kapp, Newman, and Underwood), Nov., 314

Creep rupture tests
Long-time creep-rupture tests of aluminum alloys (Leslie, Jones, and Voorhees), Jan., 32

D-E

Data acquisition
Computer data acquisition monitoring of the stress corrosion cracking of depleted uranium cantilever beam specimens (Joyce, Hasson, and Crowe), Nov., 293

Dimpling
Effect of clamping pressure on the fatigue strength of dimpled and undimpled loaded holes (Lohse and Shewchuk), May, 108

Dissipation factor
Room temperature capacitance and dissipation factor measurement of chip capacitors—an interlaboratory evaluation (Lo), Nov., 288

Durability
Application of accelerated weathering test to glass-fiber reinforced polyester sheets of improved surface durability (Yamasaki and Blaga), July, 187

Elastic waves
Vibratory horn cavitation erosion comparisons (Hammitt and Okada), Nov., 324

Electric potential
Electromotive force stability of Nicrosil-Nisil® (Wang and Starr), July, 192

Erosion
Effects of temperature on the behavior of metals under erosion by particulate matter (Gat and Tabakoff), July, 177
Erosion and cavity characteristics in rotating components (Veerabhadra Rao, Syamala Rao, and Lakshmana Rao), May, 127

Error analysis
Error analysis of intrinsic viscosity measurements (Ashar and Turcotte), Sept., 235

F

Fatigue (materials)
Computer-controlled stress intensity gradient technique for high rate fatigue crack growth testing (Donald and Schmidt), Jan., 19
Development of a closed-loop, servo-hydraulic test system for direct stress monotonic and cyclic crack propagation studies under biaxial loading (Charvat and Garrett), Jan., 9
Effect of clamping pressure on the fatigue strength of dimpled and undimpled loaded holes (Lohse and Shewchuk), May, 108
Evaluation of the three-component model for representing wide-range fatigue crack growth rate data (Saxena and Hudak), May, 113
Hydrostatic stress-sensitive relationship for fatigue under biaxial stress conditions (Mowbray), Jan., 3
Wide range stress intensity factor expression for the C-shaped specimen (Kapp, Newman, and Underwood), Nov., 314

Fatigue life
Generalized application of Neuber's rule (Seeger and Heuler), July, 199
Statistical tolerance limits for censored log-normal data (Little), March, 80

Fatigue tests
Fatigue life prediction of welded components based on fracture mechanics (El Haddad, Topper, and Smith), Nov., 301

Filtration
Constant-pressure liquid filtration: mathematical models for fast plugging of the filter medium (Johnston and Beals), March, 57

Fluidized beds
Utilization of fluidized bed combustion wastes (Collins), Sept., 259

Fly ash
Interactions of stabilized scrubber sludge and fly ash with the marine environment (Roethel, Duedall, O'Connors, Parker, and Woodhead), Sept., 250

Fracture properties
Single specimen determination of J_{Ic} for different alloy steels (Takahashi, Khan, and Suzuki), March, 63

Fracture strength
Comparisons of fracture toughness measurements by the short rod and ASTM standard method of test for plane-strain fracture toughness of metallic materials (E 399-78) (Barker and Baratta), May, 97
Measuring J_{Ic}, and the resistance to crack growth after initiation (Early and Burns), Sept., 233
Performance of chevron-notch short bar specimen in determining the fracture toughness of silicon nitride and aluminum oxide (Munz, Bubsey, and Shannon), May, 103

Fracture tests
Evaluation of the J_{Ic} testing procedure by round robin tests on A533B class 1 pressure vessel steel (Clarke), Sept., 213

Fracture toughness
Results of an ASTM cooperative test program on the J_{Ic} determination of HY130 steel (Clarke, Landes, and Begley), Sept., 221

Fractures (materials)
Proposed standard round compact specimen for plane strain fracture toughness testing (Underwood, Newman, and Seeley), Nov., 308
Vibrations in compact specimens during crack arrest testing (Rahka), Nov., 318

Fresh water fishes
Development of a chronic toxicity test using *Chironomus riparius* and the sublethal effects of trisodium carboxymethyloxysuccinate (Lee, Fullard, and Huntington), Nov., 282

Fretting
Effect of clamping pressure on the fatigue strength of dimpled and undimpled loaded holes (Lohse and Shewchuk), May, 108

Friction tests
Development and correlation of a variable-speed friction tester (Whitfield and Mullen), March, 85

G-L

Galvanic corrosion
Effect of oxygen, salt concentration, and pH on galvanic cells between a carbon filled polyethylene cathode and various metal anodes (Schick), May, 143
Galvanic corrosion of piping and fitting alloys in sulfide-modified seawater (Hack), March, 74

Heat-exchangers
Infrared techniques for the evaluation of silicon carbide heat-exchanger tubing (Deininger and Kupperman), Jan., 48

Hot forming
Hot compression testing apparatus for the study of isothermal forging (Immarigeon, Kandeil, Wallace, and de Malherbe), Nov., 273

Impurities
Impurity variations in electrolytic cathode copper (Medrick and Teague), July, 157
Studies of impurity distribution in electrolytically refined copper cathodes (Publicover and Taubenblat), Sept., 246

Industrial wastes
Potential for utilization of solid wastes from sulfur oxide control processes (Peterson), Sept., 255
Sludge to fertile soil—research results (Briggs and Freas), Sept., 265

Infrared analysis
Infrared techniques for the evaluation of silicon carbide heat-exchanger tubing (Deininger and Kupperman), Jan., 48

Intrinsic viscosity
Error analysis of intrinsic viscosity measurements (Ashar and Turcotte), Sept., 235

Lasers
Strength reduction in thin aluminum alloy sheets by irradiation (Clark and de Morton), July, 166

Letter to the editor
Comment on "a modified procedure for measuring the maximum specified gravity of bituminous paving mixtures" (Lloyd), March, 91

Limestone
Potential for utilization of solid wastes from sulfur oxide control processes (Peterson), Sept., 255

Liquid flow
Constant-pressure liquid filtration: mathematical models for fast plugging of the filter medium (Johnston and Beals), March, 57

Low temperature tests
Evaluation of the effect of low temperatures on mechanical properties of a commercial steel to be used in the Arctic (Krishnadev, Ghosh, Cutler, Prince, and Gauvin), Jan., 42

M-Q

Materials tests
Results of an ASTM cooperative test program on the J_{Ic} determination of HY130 steel (Clarke, Landes, and Begley), Sept., 221

Mean
Acceptance plan for feather and down products (Landes), July, 205
Metal sheets
Strength reduction in thin aluminum alloy sheets by laser irradiation (Clark and de Morton), July, 166
Metals
Effects of temperature on the behavior of metals under erosion by particulate matter (Gat and Tabakoff), July, 177
Nickel alloys
Electromotive force stability of Nicrosil-Nisil® (Wang and Starr), July, 192
Notch strength
Generalized application of Neuber's rule (Seeger and Heuler), July, 199
Pavements
Development and correlation of a variable-speed friction tester (Whitfield and Mullen), March, 85
Pipe fittings
Galvanic corrosion of piping and fitting alloys in sulfide-modified seawater (Hack), March, 74
Pipelines
Evaluation of the effect of low temperatures on mechanical properties of a commercial steel to be used in the Arctic (Krishnadev, Ghosh, Cutler, Prince, and Gauvin), Jan., 42
Plugging
Constant-pressure liquid filtration: mathematical models for fast plugging of the filter medium (Johnston and Beals), March, 57
Polyethylene
Shear strain to fracture characteristics of a titanium alloy and an ultrahigh molecular weight polyethylene under complex loading conditions (Grieve and Lawrence), Sept., 239
Polymers
Error analysis of intrinsic viscosity measurements (Ashar and Turcotte), Sept., 235
Powder metallurgy
Hot compression testing apparatus for the study of isothermal forging (Immarigeon, Kandeil, Wallace, and de Malherbe), Nov., 273
Product development
Sampling of electrorefined copper cathodes (Tuddenham, Dangerfield, and McMillan), July, 161
Quality control
Sampling of electrorefined copper cathodes (Tuddenham, Dangerfield, and McMillan), July, 161

S

Sampling reliability
Sampling of electrorefined copper cathodes (Tuddenham, Dangerfield, and McMillan), July, 161
Silicon carbides
Infrared techniques for the evaluation of silicon carbide heat-exchanger tubing (Deininger and Kupperman), Jan., 48
Skid resistance
Development and correlation of a variable-speed friction tester (Whitfield and Mullen), March, 85
Sludge
Interactions of stabilized scrubber sludge and fly ash with the marine environment (Roethel, Duedall, O'Connors, Parker, and Woodhead), Sept., 250
Sludge to fertile soil—research results (Briggs and Freas), Sept., 265
Standard deviation
Acceptance plan for feather and down products (Landes), July, 205
Statistical analysis
Statistical tolerance limits for censored log-normal data (Little), March, 80
Steels
Effects of stress ratio on fatigue crack growth rates in X70 pipeline steel in air and saltwater (Vosikovsky), March, 68
Evaluation of the effect of low temperatures on mechanical properties of a commercial steel to be used in the Arctic (Krishnadev, Ghosh, Cutler, Prince, and Gauvin), Jan., 42
Evaluation of the J_{Ic} testing procedure by round robin tests on A533B class 1 pressure vessel steel (Clarke), Sept., 213
Strains
Compact specimen for plane strain crack arrest toughness testing (Crosley and Ripling), Jan., 25
Hydrostatic stress-sensitive relationship for fatigue under biaxial stress conditions (Mowbray), Jan., 3
Stress corrosion
Computer data acquisition monitoring of the stress corrosion cracking of depleted uranium cantilever beam specimens (Joyce, Hasson, and Crowe), Nov., 293
Stress cracking tests
Wide range stress intensity factor expression for the C-shaped specimen (Kapp, Newman, and Underwood), Nov., 314
Stress relaxation
Stress relaxation in bending of copper beryllium alloy strip (Fox), May, 119
Stresses
Compact specimen for plane strain crack arrest toughness testing (Crosley and Ripling), Jan., 25
Computer-controlled stress intensity gradient technique for high rate fatigue crack growth testing (Donald and Schmidt), Jan., 19
Evaluation of the three-component model for representing wide-range fatigue crack growth rate data (Saxena and Hudak), May, 113
Fatigue life prediction of welded components based on fracture mechanics (El Haddad, Topper, and Smith), Nov., 301
Generalized application of Neuber's rule (Seeger and Heuler), July, 199
Long-time creep-rupture tests of aluminum alloys (Leslie, Jones, and Voorhees), Jan., 32
Proposed standard round compact specimen for plane strain fracture toughness testing (Underwood, Newman, and Seeley), Nov., 308
Sulfur oxides
Potential for utilization of solid wastes from sulfur oxide control processes (Peterson), Sept., 255

T-W

Tearing fracture
Measuring J_{Ic}, and the resistance to crack growth after initiation (Early and Burns), Sept., 233
Temperature
Effects of temperature on the behavior of metals under erosion by particulate matter (Gat and Tabakoff), July, 177
Tensile properties
Strength reduction in thin aluminum alloy sheets by laser irradiation (Clark and de Morton), July, 166
Tensile properties of A357-T6 aluminum castings (McLelland), July, 170
Thermocouples
Electromotive force stability of Nicrosil-Nisil® (Wang and Starr), July, 192
Titanium alloy
Shear strain to fracture characteristics of a titanium alloy and an ultrahigh molecular weight polyethylene under complex loading conditions (Grieve and Lawrence), Sept., 239
Torsion
Shear strain to fracture characteristics of of titanium alloy and an ultrahigh molecular weight polyethylene under complex loading conditions (Grieve and Lawrence), Sept., 239
Proposed standard round compact specimen for plane strain fracture toughness testing (Underwood, Newman, and Seeley), Nov., 308
Toxicity
Development of a chronic toxicity using *Chironomous riparius* and the subiethal effects of trisodium carboxymethyloxysuccinate (Lee, Fullard, and Huntington), Nov., 282
Ultrasonic tests
Results of an ASTM cooperative test program on the J_{Ic} determination of HY130 steel (Clarke, Landes, and Begley), Sept., 221
Vibration
Vibratory horn cavitation erosion comparisons (Hammitt and Okada), Nov., 324
Vibration tests
Vibrations in compact specimens during crack arrest testing (Rahka), Nov., 318
Wastes
Utilization of fluidized bed combustion wastes (Collins), Sept., 259
Water pollution
Development of a chronic toxicity test using *Chironomous riparius* and the sublethal effects of trisodium carboxymethyloxysuccinate (Lee, Fullard, and Huntington), Nov., 282
Wire
Impurity variations in electrolytic cathode copper (Medrick and Teague), July, 157